

Serial No. 09/498,749  
Docket : 33216 M 038

### LISTING OF CLAIMS

1. (Previously Presented) An intermittent coating apparatus, comprising:
  - a nozzle, which applies a coating to a base material; and
  - intermittent coating supply means, which intermittently feeds the coating to the nozzle, stops the feeding of the coating to the nozzle, and discharges remaining coating to a return side, the intermittent coating supply means including:
    - a coating tank,
    - a flow path supplying coating from the coating tank, the flow path including a feeding side in communication with the nozzle, a return side in communication with the coating tank, and a segment that connects the feeding side and the return side,
    - a feeding side two-way valve, positioned between the flow path segment and the feeding side of the flow path, that intermittently feeds and stops the feed of the coating to the nozzle, and
    - a return side two-way valve, positioned between the flow path segment and the return side of the flow path, that intermittently discharges remaining coating to the tank through the return side of the flow path, and stops discharge of the remaining coating to the tank through the return side of the flow path,

Serial No. 09/498,749  
Docket : 33216 M 038

wherein the return side two-way valve discharges the coating to the return side during at least a prescribed period of time from the time of starting of feeding of the coating by the feeding side two-way valve, and thereafter the return side two-way valve stops the discharge of the coating to the return side.

2. (Previously Presented) The intermittent coating apparatus according to claim 1, wherein the prescribed period of time is within a range of not less than 5 msec and not more than 500 msec.

3. (Previously Presented) The intermittent coating apparatus according to claim 1, wherein the prescribed period of time is within a range of not less than 5 msec and not more than 100 msec.

4. – 6. Cancelled

7. (Previously Presented) An intermittent coating apparatus according to claim 1, wherein the intermittent coating supply means starts the discharge of the coating to the return side at the time of ending the feeding of the coating.

8. (Previously Presented) The intermittent coating apparatus according to claim 7, wherein the time of stopping the feeding of the coating to the nozzle is earlier than the time of starting the discharge of the coating to the return side within a range of not less than 0 msec and not more than 100 msec.

Serial No. 09/498,749  
Docket : 33216 M 038

9. (Previously Presented) The intermittent coating apparatus according to claim 1, further comprising,

coating returning means which intermittently draws the coating out of the nozzle and returns the coating to the nozzle,

wherein the coating returning means returns the coating to the nozzle at the time of starting the feeding of the coating to the nozzle at the coating start time, and draws the coating out of the nozzle at the time of stopping the feeding of the coating to the nozzle.

10. (Previously Presented) The intermittent coating apparatus according to claim 7, further comprising:

coating returning means which intermittently draws the coating out of the nozzle and returns the coating to the nozzle,

wherein the coating returning means returns the coating to the nozzle at the time of starting the feeding of the coating to the nozzle at the coating start time, and draws the coating out of the nozzle at the time of stopping the feeding of the coating to the nozzle.

11. (Previously Presented) An intermittent coating apparatus comprising:  
intermittent coating supply means which intermittently feeds a coating to a nozzle;

coating returning means which intermittently draws the coating out of the nozzle, and returns the coating to the nozzle; and

Serial No. 09/498,749  
Docket : 33216 M 038

control means for controlling an operation time A to draw the coating out of the nozzle, and an operation time B to return the coating to the nozzle, so that the operation time A is less than the operation time B.

12. (Previously Presented) The intermittent coating apparatus according to claim 9, wherein the coating is drawn out of said nozzle in an amount of not less than 0.01 cc and not more than 10 cc.

13. (Previously Presented) The intermittent coating apparatus according to claim 10, wherein the coating is drawn out of said nozzle in an amount of not less than 0.01 cc and not more than 10 cc.

14. (Previously Presented) The intermittent coating apparatus according to claim 11, wherein the coating is drawn out of said nozzle in an amount of not less than 0.01 cc and not more than 10 cc.

15. (Previously Presented) The intermittent coating apparatus according to claim 9, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/msec.

16. (Previously Presented) The intermittent coating apparatus according to claim 10, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/msec.

Serial No. 09/498,749  
Docket : 33216 M 038

17. (Previously Presented) The intermittent coating apparatus according to claim 11, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/msec.

18. (Previously Presented) The intermittent coating apparatus according to claim 12, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/insec.

19. (Previously Presented) The intermittent coating apparatus according to claim 13, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/msec.

20. (Previously Presented) The intermittent coating apparatus according to claim 14, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/msec.

21. (Previously Presented) The intermittent coating apparatus according to claim 9, wherein the coating returning means uses a piezoelectric element.

22. (Previously Presented) The intermittent coating apparatus according to claim 10, wherein the coating returning means uses a piezoelectric element.

Serial No. 09/498,749  
Docket : 33216 M 038

23. (Previously Presented) The intermittent coating apparatus according to claim 11, wherein the coating returning means uses a piezoelectric element.

24. - 25. Cancelled.

26. (Previously Presented) An intermittent coating apparatus according to claim 1, wherein the intermittent coating supply means includes control means which independently controls operation of the feeding side two-way valve and the return side two-way valve.

27. (Previously Presented) The intermittent coating apparatus according to claim 26, wherein at least the return side two-way valve is configured to open and close the flow path by operating a piston, and wherein the piston is moved to close the flow path in a direction which is the same as that of a flow of the coating to the return side.

28. (Previously Presented) The intermittent coating apparatus according to claim 26, wherein the time of switching the feeding side two-way valve is earlier than the time of switching the return side two-way valve, at the time of starting the coating, within a range of not less than 5 msec and not more than 500 msec.

29. (Previously Presented) The intermittent coating apparatus according to claim 27, wherein the time of switching the feeding side two-way valve is earlier than

Serial No. 09/498,749  
Docket : 33216 M 038

23. (Previously Presented) The intermittent coating apparatus according to claim 11, wherein the coating returning means uses a piezoelectric element.

24. - 25. Cancelled.

26. (Previously Presented) An intermittent coating apparatus according to claim 1, wherein the intermittent coating supply means includes control means which independently controls operation of the feeding side two-way valve and the return side two-way valve.

27. (Previously Presented) The intermittent coating apparatus according to claim 26, wherein at least the return side two-way valve is configured to open and close the flow path by operating a piston, and wherein the piston is moved to close the flow path in a direction which is the same as that of a flow of the coating to the return side.

28. (Previously Presented) The intermittent coating apparatus according to claim 26, wherein the time of switching the feeding side two-way valve is earlier than the time of switching the return side two-way valve, at the time of starting the coating, within a range of not less than 5 msec and not more than 500 msec.

29. (Previously Presented) The intermittent coating apparatus according to claim 27, wherein the time of switching the feeding side two-way valve is earlier than

Serial No. 09/498,749  
Docket : 33216 M 038

the time of switching the return side two-way valve, at the time of starting the coating, within a range of not less than 5 msec and not more than 500 msec.

30. (Previously Presented) The intermittent coating apparatus according to claim 26, wherein the coating discharged to the tank is in an amount of not less than 0.01 cc and not more than 10 cc.

31. - 48. Cancelled

49. (New) A method of intermittent coating using the apparatus according to claim 1, comprising:

- a) rolling a base material along a back roll spaced a predetermined distance from the nozzle;
- b) starting the extruding of coating from the nozzle by opening the feeding side two-way valve and closing the return side two-way valve;
- c) applying the coating to the base material through the nozzle;
- d) stopping the extruding of coating from the nozzle by closing the feeding side two-way valve and opening the return side two-way valve; and
- e) repeating preceding steps b) to d) as necessary to obtain an intermittently coated base material.

Serial No. 09/498,749  
Docket : 33216 M 038

50. (New) The method according to claim 49, wherein the time of opening the feeding side two-way valve when starting the extruding is earlier than the time of closing the return side two-way valve within a range of not less than 5 msec and not more than 500 msec.

51. (New) The method according to claim 50, wherein the range of time is not less than 5 msec and not more than 100 msec.

52. (New) The method according to claim 49, wherein the time of closing the feeding side two-way valve when stopping the extruding is earlier than the time of opening the return side two-way valve within a range of not less than 0 msec and not more than 100 msec:

53. (New) A method of intermittent coating using the apparatus according to claim 9, comprising:

- a) rolling a base material along a back roll spaced a predetermined distance from the nozzle;
- b) starting the extruding of coating from the nozzle by opening the feeding side two-way valve, closing the return side two-way valve, and returning the coating to the nozzle with the coating returning means;
- c) applying the coating to the base material through the nozzle;

Serial No. 09/498,749  
Docket : 33216 M 038

- d) stopping the extruding of coating from the nozzle by closing the feeding side two-way valve, opening the return side two-way valve, and drawing the coating out of the nozzle with the coating returning means; and
- e) repeating preceding steps b) to d) as necessary to obtain an intermittently coated base material.

54. (New) The method according to claim 53, wherein a control means is provided for controlling an operation time A to draw the coating out of the nozzle, and an operation time B to return the coating to the nozzle, so that the operation time A is less than the operation time B.

55. (New) The method according to claim 54, wherein the coating is drawn out of the nozzle in an amount of not less than 0.01 cc and not more than 10 cc.

56. (New) The method according to claim 54, wherein the coating is returned to the nozzle at a flow rate of not less than 1 cc/msec.

57. (New) The method according to claim 54, wherein the coating returning means uses a piezoelectric element.

219761